Claims now before the Examiner are 13, 17-20, 30, 33, 35, 36, 39-66, 70-74, 99, 103-117. Claims 1-12, 14-16, 21-29, 31, 32, 34, 37, 38, 67-69, 75-98, 100-102, and 117-120 have been cancelled.

The numbering in this response will follow that of the Examiner's Action.

1. No response necessary.

2. No response necessary.

3. No response necessary.

4. Claims 6, 17-20, 30, 33, 35, 36, 39-42, 100 and 118-120 have been rejected under 35 USC § 112. Claim 6 has been cancelled.

5. Claims 1, 6, 13, 17-20, 30, 33, 35, 36, 39-74, 96-100 and 118-120 have been rejected under 35 USC § 112. Applicant has made the requested changes for antecedent basis.

Rejections Under 35 USC § 102 and 35 USC § 103

6. No response necessary.

5. Claims 1, 6, 13, 17-20, 30, 33, 35, 36, 39-74, 96-100 and 118-120 have been rejected under 35 U.S.C. § 102(e) as anticipated by or in the alternative 35 USC § 103(a) as obvious over US 5,866,663 (Brookhardt).

Brookhardt (Example 98) discloses a palladium catalyst activated with SbF_6^- combined with silica (at a level of about 126 μm transition metal per gram of silica) for ethylene polymerization. Note that the catalyst/silica combination produced a "gummy" lower molecular weight polymer with a broader molecular weight distribution. Applicant's claimed invention is novel over Brookhardt because Brookhardt does not disclose the requirement that

the transition metal loading is less than 100 micromoles transition metal per gram of solid support. This feature is important in Applicant's claimed invention. Brookhardt's loading of about 126 micromoles produced a "gummy" polymer having a broad molecular weight distribution. Applicant's loading of less than 100 micromoles produces a narrow molecular weight distribution polymer that is not gummy. Nothing within the four corners of Brookhardt discloses that lower loading levels will produce non-gummy polymers. Thus Applicant's claimed invention is not anticipated by Brookhardt under 35 USC § 102(e).

The Examiner also suggests that the claimed invention is obvious over Brookhardt. Applicant respectfully disagrees. Brookhardt discloses various di-imine catalyst compounds that can be activated to polymerize ethylene. Example 98 discloses a specific di-imine activated with SbF_6^- loaded onto silica at 126 micromoles per gram that produces gummy broad molecular weight distribution polymer. Nothing within Brookhardt discloses or suggests that Applicant's requirement that the transition metal loading is less than 100 micromoles transition metal per gram of solid support will produce "non-gummy" polymers. Further, when Examples 97 and 98 are compared, it shows that silica has a negative effect on the catalyst system. Thus Brookhardt teaches away from Applicant's claimed invention. Therefore, since nothing within Brookhardt discloses Applicant's claimed supported catalyst systems with loadings of 100 micromoles per gram of support or less and nothing within Brookhardt presents a reasonable expectation that Applicant's supported catalyst system can successfully produce non-gummy polymers, Applicant respectfully submits that the claimed invention is not obvious over Brookhardt under 35 USC § 103(a).

Claims 1, 6, 13, 17-20, 30, and 33-42 have been rejected under 35 U.S.C. § 103(a) as obvious over any of U.S. 4,849,542 (Drent) or J. Am. Chem. Soc., Vol 117, No. 23, PP. 6414-6415, (1995) (Johnson), in view of US 5,866,663 (Brookhardt).

Drent is directed to acid and/or ester synthesis using mineral acids. Drent does not disclose a catalyst system capable of olefin polymerization. Drent also does not disclose supported catalyst systems. Absolutely nothing within the four corners of Drent discloses or suggests Applicant's claimed invention. Further the combination of Drent with Brookhardt does not produce a viable coordination polymerization catalyst system. Adding silica to

Drent's catalyst system will not change the mineral acids into olefin polymerization catalysts. Thus no one of ordinary skill in the art would look to Drent for guidance on coordination polymerization catalyst systems. It is only with the advantage of hindsight reconstruction using Applicant's claims as a map, that one of ordinary skill in the art would not think to combine Drent with Brookhardt. Applicant respectfully submits that the claimed invention is not obvious over Drent in view of Brookhardt under 35 USC § 103(a).

Johnson discloses di-imine catalysts used in solution polymerization to produce ethylene polymers and, as the Examiner acknowledges, does not disclose supports. Brookhardt discloses an example where a silica/activated catalyst combination produced a gummy, rubbery lower molecular weight ethylene polymer with a broad molecular weight distribution. Combining these two references does not produce Applicant's claimed invention of a supported catalyst system that produces higher molecular weight polymers with narrow molecular weight distributions and, film grade densities in some embodiments. Likewise the combination of Johnson and Brookhardt does not present a reasonable expectation of successfully obtaining useful higher molecular weight narrow molecular weight distribution polymers from Applicant's particular combination. Applicant respectfully submits that the claimed invention is not obvious over Johnson in view of Brookhardt under 35 USC § 103(a).

In summary, Applicant submits that any analysis of obviousness of a claimed combination must include consideration of the results achieved by that combination. When the prior art does not suggest that the components be combined as they were by the inventor or that such combination could achieve the advantages found by the inventor, the claimed invention is not obvious over that prior art. Applicant has shown that none of the references alone or in combination suggest that the catalyst, support and activator be combined as they were by Applicant to achieve the superior polymers.

Applicant respectfully submits that the claimed invention is neither anticipated nor obvious over the references cited and respectfully request the rejections be withdrawn.

Applicant believes the claims are in condition for allowance and respectfully requests notice of such.

Respectfully submitted,

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